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IS 7010 (1973): Pivots for Magnetic Compasses [PGD 22: Educational Instruments and Equipment]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS:7010-1973

REAFFIRMED

Indian Standard

**SPECIFICATION FOR
PIVOTS FOR MAGNETIC COMPASSES**

UDC 744.342.032



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INDIAN STANDARDS INSTITUTION
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AMENDMENT NO. 1 APRIL 1987

TO

IS:7010-1973 SPECIFICATION FOR PIVOTS FOR
MAGNETIC COMPASSES

(Page 4, clause 5.5) - Substitute the
following for the existing clause:

'5.5 The materials used for all 4 types of pivots
shall be non-magnetic.'

(EDC 36)

Reprography Unit, ISI, New Delhi, India

Indian Standard

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Indian Standard

SPECIFICATION FOR PIVOTS FOR MAGNETIC COMPASSES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 21 June 1973, after the draft finalized by the Optical and Mathematical Instruments Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS: 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This specification covers the requirements for pivots used for giving frictionless support to the magnetic needles in various types of compasses.

1.2 This specification does not cover special requirements.

2. TYPES

2.1 The pivots shall be of the following types:

Type A — Plain;

Type B — Plain and alloy tipped;

Type C — Screwed, slotted head; and

Type D — Screwed, slotted head and alloy tipped.

3. MATERIAL AND HARDNESS

3.1 The material for the Types A and C pivots shall be tool steel conforming to IS: 1570-1961†.

*Rules for rounding off numerical values (*revised*).

†Schedules for wrought steels for general engineering purposes.

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3.2 The material for Types B and D pivots shall be as follows:

Shank — Brass conforming to IS: 319-1968*.

Tips — Osmium-iridium, iridium or tungsten carbide conforming to IS: 7010-1973.

3.3 In case of tool steel, Types A and C pivots, hardness of the tips shall not be less than 700 *HV* (micro hardness); and for alloy tips, that is, Types B and D, the hardness shall be 1400 *HV* (micro hardness), *Min.* Pivots of Types A and C shall be properly tempered after hardening.

4. DIMENSIONS

4.1 The shapes and dimensions of the pivots shall be as given in Table 1.

5. GENERAL REQUIREMENTS

5.1 The tip of the pivots shall be concentric with the axis of the pivots and shall be spherical.

5.2 The tips shall be highly polished, and hardened.

5.3 Dimensions of the tips and the shank portion shall be maintained.

5.4 In case of Types B and D pivots, there shall not be any holes, cracks, and pitting marks or any other deformities between points of tip and shank at the joint.

5.5 All materials used for Types B and D pivots shall be nonmagnetic.

6. DESIGNATION

6.1 The pivot shall be designated by its name, type, length and the number of this standard.

Example:

A pivot of Type A, having a length $l = 25$ mm shall be designated as:

Pivot A 25 IS: 7010-1973.

7. WORKMANSHIP AND FINISH

7.1 All surfaces of the pivots shall be smooth. Finish of the tips by plating is not recommended.

8. PACKING AND MARKING

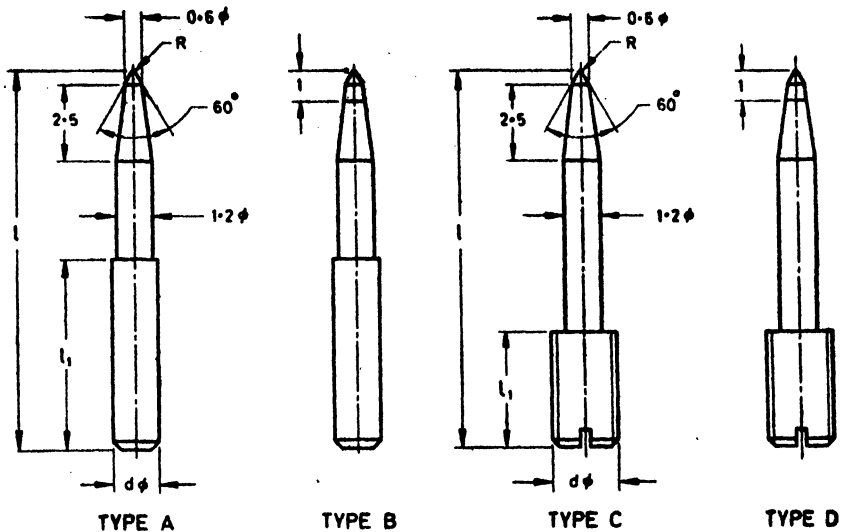
8.1 The packing shall be such that the pivots do not get rusted and the tips are adequately protected from damage. This shall be done by greasing the pivots properly and then piercing them into a suitable soft material of sufficient thickness.

*Specification for free-cutting brass rods and sections (second revision).

TABLE 1 DIMENSIONS FOR PIVOTS

(Clause 4.1)

All dimensions in millimetres.



NOTE — Other dimensions and details of Type B and Type D are the same as for Type A and Type C respectively.

TYPE	l	l_1	d	R
A and B	12.5	6.25	1.5	0.04
	25.0	18.75	3.0	0.1
C and D	10.5	3.2	M2.2	0.04
	12.5	3.3	M2.2	0.04
	25.0	5.0	M3	0.1

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8.2 The pivots shall be packed parallel with one another and so arranged that any one may be removed from the package without disturbing others.

8.3 Each packet of the pivots shall be wrapped and sealed to prevent the ingress of dampness or dust.

8.4 Each packet of pivots shall be suitably marked with the designation for proper identification.

8.4.1 The packets of pivots may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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IS:

1492-1959	Metric surveying chains
1632-1960	Bubbles
1764-1961	Trough compass
1779-1961	4-Metre, levelling staff, folding type
1842-1961	Surveying chains pins (arrows)
1955-1961	Prismatic compass, liquid
1957-1961	Prismatic compasses, non-liquid
2288-1963	Ranging rods
2539-1963	Plane tables
2976-1964	Optical theodolite
2988-1965	Vernier theodolite
4380-1967	Abney level
4590-1967	Engineer's level
5146-1969	Sounding sextant
5706-1970	Spirit levels for use in precision engineering
5928-1970	Tangent clinometer

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